# Title

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***connect_options*** — Options for connecting points with lines

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## Description

The *connect_options* specify how points on a graph are to be connected.

In certain contexts (for example, `scatter`; see [G-2] **graph twoway scatter**), the `lstyle()`, `lpattern()`, `lwidth()`, `lcolor()`, and `lalign()` options may be specified with a list of elements, with the first element applying to the first variable, the second element to the second variable, and so on. For information about specifying lists, see [G-4] ***stylelists***.

## Syntax

| *connect_options* | Description |
|---|---|
| `connect(`*connectstyle*`)` | how to connect points |
| `sort`[ `(`*varlist*`)` ] | how to sort before connecting |
| `cmissing(`{ `y`\|`n` } `...)` | missing values are ignored |
| `lpattern(`*linepatternstyle*`)` | line pattern (solid, dashed, etc.) |
| `lwidth(`*linewidthstyle*`)` | thickness of line |
| `lcolor(`*colorstyle*`)` | color and opacity of line |
| `lalign(`*linealignmentstyle*`)` | line alignment (inside, outside, center) |
| `lstyle(`*linestyle*`)` | overall style of line |
| `pstyle(`*pstyle*`)` | overall plot style, including linestyle |
| `recast(`*newplottype*`)` | advanced; treat plot as *newplottype* |

All options are *rightmost*; see [G-4] **Concept: repeated options**. If both `sort` and `sort(`*varlist*`)` are specified, `sort` is ignored and `sort(`*varlist*`)` is honored.

## Options

`connect(`*connectstyle*`)` specifies whether points are to be connected and, if so, how the line connecting them is to be shaped; see [G-4] ***connectstyle***. The line between each pair of points can connect them directly or in stairstep fashion.

`sort` and `sort(`*varlist*`)` specify how the data be sorted before the points are connected.

`sort` specifies that the data should be sorted by the $x$ variable.

`sort(`*varlist*`)` specifies that the data be sorted by the specified variables.

`sort` is the option usually specified. Unless you are after a special effect or your data are already sorted, do not forget to specify this option. If you are after a special effect, and if the data are not already sorted, you can specify `sort(`*varlist*`)` to specify exactly how the data should be sorted.

Specifying `sort` or `sort(`*varlist*`)` when it is not necessary will slow `graph` down a little. It is usually necessary to specify `sort` if you specify the `twoway` option `by()`, and especially if you include the suboption `total`.

Options `sort` and `sort(`*varlist*`)` may not be repeated within the same plot.

`cmissing(`{ `y` | `n` } `...)` specifies whether missing values are to be ignored. The default is `cmissing(y ...)`, meaning that they are ignored. Consider the following data:

| | rval | x |
|---|---|---|
| 1. | .923 | 1 |
| 2. | 3.046 | 2 |
| 3. | 5.169 | 3 |
| 4. | . | . |
| 5. | 9.415 | 5 |
| 6. | 11.538 | 6 |

Say that you graph these data by using "`line rval x`" or equivalently "`scatter rval x, c(l)`". Do you want a break in the line between 3 and 5? If so, you code

```
. line rval x, cmissing(n)
```

or equivalently

```
. scatter rval x, c(l) cmissing(n)
```

If you omit the option (or code `cmissing(y)`), the data are treated as if they contained

| | rval | x |
|---|---|---|
| 1. | .923 | 1 |
| 2. | 3.046 | 2 |
| 3. | 5.169 | 3 |
| 4. | 9.415 | 5 |
| 5. | 11.538 | 6 |

meaning that a line will be drawn between (3, 5.169) and (5, 9.415).

If you are plotting more than one variable, you may specify a sequence of `y`/`n` answers.

`lpattern(`*linepatternstyle*`)`, `lwidth(`*linewidthstyle*`)`, `lcolor(`*colorstyle*`)`, `lalign(`*linealignmentstyle*`)`, and `lstyle(`*linestyle*`)` determine the look of the line used to connect the points; see [G-4] **Concept: lines**. Note the `lpattern()` option, which allows you to specify whether the line is solid, dashed, etc.; see [G-4] ***linepatternstyle*** for a list of line-pattern choices.

`pstyle(`*pstyle*`)` specifies the overall style of the plot, including not only the *linestyle*, but also all other settings for the look of the plot. Only the *linestyle* affects the look of line plots. See [G-4] ***pstyle*** for a list of available plot styles.

`recast(`*newplottype*`)` is an advanced option allowing the plot to be recast from one type to another, for example, from a line plot to a scatterplot; see [G-3] ***advanced_options***. Most, but not all, plots allow `recast()`.

## Remarks and examples

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An important option among all the above is `connect()`, which determines whether and how the points are connected. The points need not be connected at all (`connect(i)`), which is `scatter`'s default. Or the points might be connected by straight lines (`connect(l)`), which is `line`'s default (and is available in `scatter`). `connect(i)` and `connect(l)` are commonly specified, but there are other possibilities such as `connect(J)`, which connects in stairstep fashion and is appropriate for empirical distributions. See [G-4] ***connectstyle*** for a full list of your choices.

Equally as important as `connect()` is `sort`. If you do not specify this, the points will be connected in the order in which they are encountered. That can be useful when you are creating special effects, but, in general, you want the points sorted into ascending order of their $x$ variable. That is what `sort` does.

The remaining connect options specify how the line is to look: Is it solid or dashed? Is it red or green? How thick is it? Option `lpattern()` can be of great importance, especially when printing to a monochrome printer. For a general discussion of lines (which occur in many contexts other than connecting points), see [G-4] **Concept: lines**.

## Also see

[G-4] **Concept: lines** — Using lines

[G-4] ***colorstyle*** — Choices for color

[G-4] ***connectstyle*** — Choices for how points are connected

[G-4] ***linealignmentstyle*** — Choices for whether outlines are inside, outside, or centered

[G-4] ***linepatternstyle*** — Choices for whether lines are solid, dashed, etc.

[G-4] ***linestyle*** — Choices for overall look of lines

[G-4] ***linewidthstyle*** — Choices for thickness of lines